Sept. 7, 1943. A. I. KEGAN 2,329,055

ENVELOPE OR THE LIKE

Filed April 6, 1939

Fig. 1.

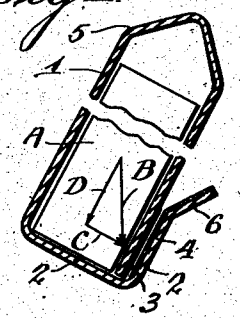


Fig. 2.

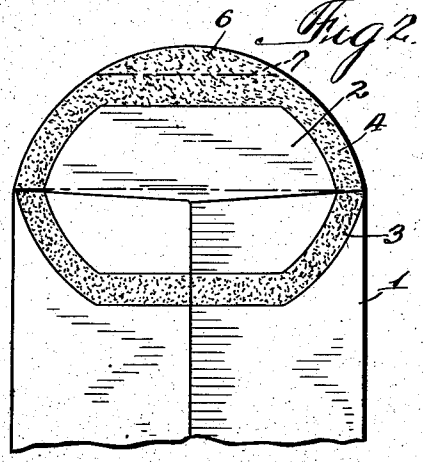


Fig. 3.

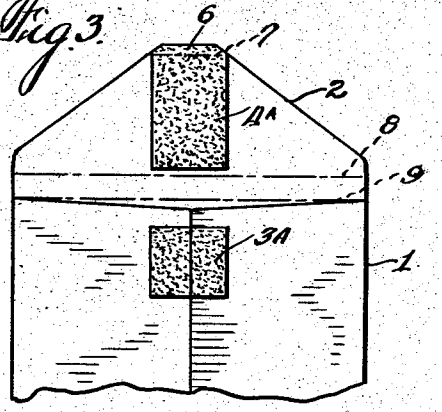


Fig. 4.

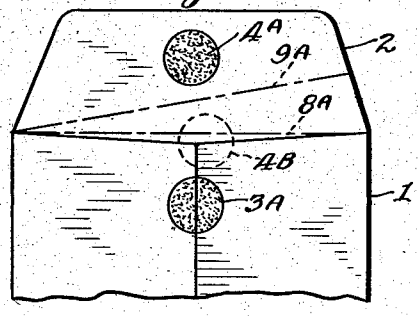


Fig. 5.

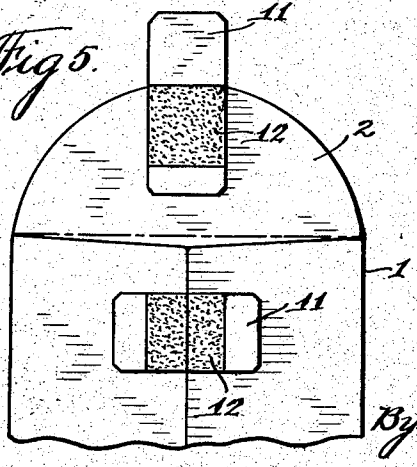
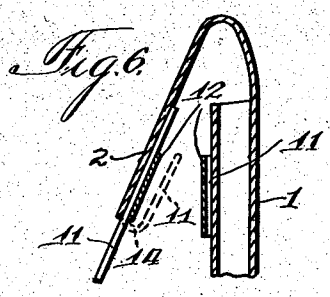


Fig. 6.



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UNITED STATES PATENT OFFICE

2,329,055

ENVELOPE OR THE LIKE

Albert I. Kegan, Chicago, Ill.

Application April 6, 1939, Serial No. 266,321

17 Claims. (Cl. 229—80)

The present application is in part a continuation of my copending application Serial No. 740,885, filed August 22, 1934, from which matured Patent No. 2,168,873, granted August 8, 1939.

The present invention relates to containers, such as envelopes, mail wrappers, and the like, and more particularly to envelopes which are adapted to be repeatedly sealed, opened, and resealed, for purposes of postal inspection, for example, but which also may be permanently sealed for mailing first class matter if desired.

Envelopes capable of being repeatedly opened and closed have heretofore been provided with some type of metallic fastener and eyelet or with a string and button, to retain the flap in its closed relationship to the body of the container. These fastening devices all have certain disdavantages, both as regards the cost of manufacture, and also as regards their inconvenience in use. They must be attached to the otherwise complete envelopes by a series of separate operations ordinarily requiring the use of riveting machinery or other special equipment, so that the attachment of these devices not only involves a considerable expense but also materially slows down the rate of production. In order to close envelopes embodying previous constructions, the user is obliged to perform various preliminary operations such as raising the clasps, followed by the motions required to effect closure, such as inserting the clasps in a small opening in the flap and flattening them out, or winding a string about a button, or the like; and in order to open the envelopes these operations must be reversed. Moreover, such prior containers do not close in such a manner as to prevent the adventitious entrance of foreign materials such as dust and the like.

One of the objects of the present invention is to provide a container for mailing and other purposes which is inexpensive to manufacture, and which is simple and easy to open, for example, for purposes of postal inspection.

Another object of the present invention is to provide containers which may be easily and quickly opened and thereafter resealed by pressure only, which containers when closed possess sufficient strength to retain bulky materials such as catalogs or the like without rupture of the seal.

Another object is to provide an entirely new article of manufacture consisting of an envelope which may be repeatedly sealed and unsealed when the coacting coatings are pressed together in a dry condition, but which nevertheless may be firmly and permanently sealed if preferred by pressing such coatings together after one or both have been moistened in a manner customary with ordinary envelopes.

Another object is to provide an envelope which may be permanently sealed by moistening one of the sealing areas and pressing it upon the other sealing area, said permanent seal being formed even though the sealing areas have previously been used a number of times for dry-sealing repeat-sealing purposes.

Still another object comprises an envelope provided with a coating capable of repeat-sealing, when dry, to properly prepared surfaces and also capable of permanently sealing, when moistened, to similar surfaces or to ordinary uncoated surfaces.

Other objects will become apparent as the invention is hereinafter more particularly described.

The foregoing objects may be attained in accordance with the present invention, in which inexpensive fluids or semi-solid compositions that are easy to handle are applied to the appropriate regions of the container and dried to deposit thereon coatings which actually strengthen the fabric, which effect closure by the simple operation of being pressed together, and which permit the opening of the container by the equally simple operation of being pulled apart—said operation being made extremely convenient by the construction of the containers as hereinafter described with reference to the drawing, wherein

Fig. 1 is a view in vertical central section through a container which may be repeatedly opened and sealed, and illustrates the envelope in its sealed relationship, with a bulky object retained therein. It also illustrates diagrammatically the forces exerted by said object.

Fig. 2 is a back view of an open end of an envelope constructed in accordance with the present invention.

Fig. 3 is a back view of an open end of an envelope for enclosing bulky material and illustrates a modified envelope construction in accordance with the invention.

Fig. 4 is a back view of an open end of an envelope, the flap of which is provided with creases disposed in angular relationship to each other, whereby contact of the adhesive areas may be avoided when desired.

Fig. 5 is similar to Figs. 1 and 2, and illustrates another method of applying coacting coated surfaces to the envelope.

Fig. 6 is a side elevation of an open end of an envelope similar to that shown in Fig. 5, and with the flap folded to bring the adhesive areas into alignment for sealing.

Referring generally to the drawing, the invention is illustrated with reference to containers adapted to enclose material to be carried in the mails at reduced rates of postage, and therefore constructed in such a manner that the containers may be easily, quickly, and repeatedly opened for postal inspection and resealed by pressure only, but which may nevertheless be used if desired to seal the contents against inspection so as to constitute first class mail.

Fig. 1 illustrates the basic construction embodying the present invention, and indicates diagrammatically the action of the forces involved. Fig. 1 is a view in vertical central section of a container consisting of a body 1 and a flap 2, having a book or similar object A loosely enclosed therein. Portions of the flap and body are provided with appropriate sealing films 3 and 4, as hereinafter more fully described, and are shown engaged to effect closure of the container. When the body of the container is suspended at any point 5, the contents exert a force on the container, as indicated by the arrow B, said force consisting of a component C perpendicular to the surface of contact of the coatings 3 and 4 and a component D parallel to said surface of contact. The component C is transmitted through the object A and the body 1 of the container to the coating 4, and thus serves to press said coating 4 even more securely against coating 3. The component D is transmitted through the object A and the flap 2 to the coating 3, and thus tends to move said coating 3 over coating 4 in the plane of mutual contact. The coatings of the present invention, however, possess a resistance to the tendency toward relative displacement in this direction sufficient to prevent such displacement from occurring, and the container remains sealed. Since 5 represents any point of suspension whatsoever, it is apparent that all possible stresses due to the movement or weight of the contents of the container can exert themselves against the closure only in the direction in which the coacting coatings possess the greatest resistance to separation, and then only in such a manner as to increase the effectiveness of the seal by holding the coacting coatings in closer contact. In numerous tests, containers embodying the present invention have been agitated with heavy objects loosely enclosed therein until the contents tore through the fabric of the container, and in every case this treatment failed to separate the coacting coatings.

However, by pulling the tab 6 outwardly from the body of the container, the coating 3 is readily stripped away from its complementary coating 4 (when the latter is dry-sealed to the former, as hereinafter explained), and thus the container may be opened with ease whenever it is desired to do so, after which it may again be effectively sealed by again pressing the flap down against the body of the envelope and thus bringing the complementary coated areas into contact under pressure.

Figs. 2 to 6, inclusive, illustrate various embodiments of this invention. The article illustrated in Fig. 2 comprises an envelope body 1 having an area 3 of a suitable sealing composition thereon as hereinbelow described, and a flap 2 having thereon a complemental area 4 likewise coated with sealing composition, and having attached thereto a tub 6. This tab provides a means whereby the flap may be grasped and pulled outwardly from the envelope body whenever it is desired to open the envelope, as for example, for inspection of its contents by the postal authorities. If desired, the flap may be lightly scored along the dotted line 7 in order that the tab may be raised easily. Since the dry coatings do not stick to the fingers or to uncoated portions of the envelope, the tab 6 is preferably coated with the same composition as is applied to the region 4, thus utilizing the strength, toughness and resistance to flexing of these sealing coatings to reinforce the fabric and allow the envelope to be freely opened and resealed without tearing the tab. If the tab is coated, its complemental area below the region 3 is left uncoated, so that folding the flap along the usual folding line does not cause the tab to be fastened to the body of the envelope, since the composition coating does not dry-seal to paper, as stated previously.

In the embodiment illustrated in Fig. 2 the flap is sealed completely to the corners of the envelope, which protects the interior from the adventitious entrance of dirt and the like and which also prevents other envelopes or cards from engaging underneath the flap and tending to loosen it during handling or transportation.

Fig. 3 illustrates an embodiment provided with restricted sealing areas 3a and 4a in conjunction with a construction designed to completely enclose bulky objects. In enclosing an object of this type, the flap folds on the lines 8 and 9 so that the region therebetween covers the top of the contents, and part of the region 4A makes contact with all of the region 3A in order to seal the flap in its closed position, the appearance then being somewhat similar to that illustrated in Fig. 1. The portion 6 serves as a tab for opening purposes and is preferably coated with the sealing composition in order to be thereby strengthened. When the envelope is used to enclose a somewhat smaller object, the flap may be folded on only one of the lines 8 or 9 and part of the region 4A will nevertheless make contact with all of the region 3A and thus close the container.

Fig. 4 is somewhat similar to Fig. 3 except that the envelope is provided with a plurality of folds or scored lines placed in angular relationship to each other, whereby the flap may be folded on the line 9A to maintain the restricted adhesive region 3A out of contact with its complementary adhesive region 4A during storage and whereby the flap may be folded on the line 8A to bring the adhesive regions into alignment for sealing purposes. When the flap is folded on the line 9A, the adhesive region 4A takes the position indicated at 4B.

In some cases it is desired to apply sealing means to envelopes, the flaps of which either may or may not already have a coating of the ordinary wet-sealing adhesive of the prior art, and for this purpose the embodiment illustrated in Figs. 5 and 6 is provided with small tabs or strips 11 which may be of any suitable fabric, preferably paper, and which are provided with sealing coatings 12. These strips may if desired have a water-soluble adhesive on one side and sealing composition of the present invention on the other, and they may be glued to the envelopes as illustrated, and when the flap is folded the strips may be sealed together by pressure. These strips may be provided with composition having characteristics allowing them to be readily opened and resealed. The strips preferably extend somewhat beyond the coated region, whereby the end may be used as a tab for open-

ing the sealed envelope. When the envelope is folded, the coated areas are brought into alignment in the manner illustrated in Fig. 6, whereby they may be easily secured together by pressure.

In Fig. 6 the strip attached to the envelope flap 2 is shown as extending beyond the coated region a sufficient distance to permit the strip to be folded inwardly at 14, as shown by dotted lines, so that the uncoated portion may lie between the coated regions and prevent them from coming in contact during storage. When the flap is raised and the strip thereon is unfolded, the coated regions may be brought into contact.

The compositions to be used for coating the sealing areas of the present invention preferably comprise an aqueous dispersion of rubber, desirably in the form of rubber latex, in intimate admixture with water-soluble adhesives such as glue, casein, gelatin, dextrin, or the like. The composition may contain only one of the adhesives, or several of them may be used in the same formula. These compositions generally have a rubber content exceeding 20% of the total weight of the coating as applied to the envelope. The rubber content of these compositions generally exceeds 50% of the total solids content thereof. By incorporating rubber and water-soluble adhesives in intimate intermixture in one composition, and utilizing this composition in an envelope structure, unique results are obtained. The sealing areas formed from the compositions of the present invention are attached to the base fabric with great tenacity. They are not tacky or sticky to the touch, nor do they adhere to the fingers, paper, or typewriter platen on contact in the dry condition. They are dry-sealing. They are repeat-sealing. After being dry-sealed together, a pull on the tab strips the coatings apart, instead of stripping one of the coatings off the paper, or tearing off the tab. The coatings retain their properties over long periods of time. They do not lose their usefulness after being used once, but on the contrary, the coacting coatings may be sealed together and disengaged hundreds of times. And with the appropriate proportions of rubber and water-soluble adhesive, the container may be sealed permanently by moistening one of the coated areas before pressing them together. Thus, the envelope of the present invention may be wet sealed to form a permanent seal in the manner indicated even after it has been used a large number of times as a repeat-sealing envelope.

Antioxidants such as aldol-alpha-naphylamine, phenyl-beta-naphthylamine, symmetrical di-beta - naphthyl - paraphenylenediamine, and the like, may be incorporated into the coating compositions to retard the aging of the rubber therein. Gums, such as karaya or tragacanth may be included to increase the viscosity and "pick up" of the composition in the fluid condition. Wetting agents such as Aerosol, Tergitol, or Gardinol may be utilized to increase the penetration of the fluid composition into the fabric of the envelope.

The coacting sealing areas need not be identical. For example, the sealing area on the body of the envelope may be relatively rich in rubber, and the corresponding sealing area on the flap and tab may be relatively rich in water-soluble adhesive, so that the permanent seal to be obtained by moistening may be formed more readily. The proportion of water-soluble adhesive may even be so large that the tab, after being moistened, will adhere to the body of the envelope.

For every 100 parts by weight of rubber solids, the compositions may contain from 1 to 40 parts of glue, or from 6 to 30 parts of gelatin, or from 10 to 45 parts of casein, or from 10 to 70 parts of dextrin, or mixtures of two or more of the foregoing adhesives within the proportions indicated. Hygroscopic substances such as sugar, glycerol, calcium chloride and the like may be incorporated in small amounts into the compositions, and increase their adhesiveness. The compositions which give the most effective permanent seals after being moistened contain the higher proportions of water-soluble adhesives.

In order more particularly to disclose the nature of the compositions, several examples will now be more fully described. It should be clearly understood, however, that this is done entirely by way of example, and is not to be construed as a limitation upon the spirit and scope of the appended claims. In the following examples all the proportions are indicated on a weight basis.

Example I

Rubber solids from latex	100
Age-retarder	1
Gelatin	10
Water	As required

This composition may be prepared in the following manner:

(1) A 30% dispersion of the age-retarder is made by grinding in a pebble mill 3 parts by weight of the powdered age-retarder with 7 parts of water containing a small amount, say 0.1% to 3%, of a dispersing agent, such as triethanolamine oleate, Darvan, or the like;

(2) Two parts of this 30% dispersion are gradually mixed with 100 parts of a concentrated natural rubber latex containing 60% solids and preserved with ammonia;

(3) A 10% solution of gelatin is prepared. If the reaction is acid, enough ammonia water is added to make it alkaline. The gelatin solution may contain preservatives or antiseptics such as cresol, eucalyptol, or phenylmercuric nitrate in the customary proportions;

(4) If the gelatin solution solidifies, it is gently warmed, and 60 parts of the 10% gelatin solution are slowly mixed with stirring into the mixture of latex and age-retarder.

This gives a composition which is a viscous fluid while warm, and a solid gel at room temperature. If a more fluid composition is desired, water is added, or the formula is made up from an unconcentrated natural latex.

When this composition is spread on paper, coagulated, and most of the water evaporated, preferably in conjunction with the application of heat, a clear transparent film is obtained tenaciously attached to the fabric and possessing the desired adhesive properties toward similar coatings, combined with the property of not dry-sealing to untreated paper and other materials. Envelopes having corresponding areas coated with this composition are repeat-sealing when dry-sealed, but may be sealed permanently by moistening one or both coatings before pressing them together. The adhesiveness, both for repeat-sealing and for permanent-sealing purposes, of the films obtained by the use of the above-described composition, or of any of the compositions within the scope of the present invention, may be varied by changing the time or intensity of heating, or by varying the

thickness of the film, or both. The films may be increased in thickness by increasing the viscosity of the coating fluid by incorporating therein various gums and the like, as mentioned hereinabove, or by applying the fluid more slowly, or by applying several coats to the same region, or by increasing the solids content of the fluid used, as will be apparent to those skilled in the art.

Example II

Rubber solids	100
Age-retarder	2
Zinc oxide	10–70
Glue	35–10
Water	As required

The solids, in the form of aqueous dispersions, are gradually worked into the latex, as described before in detail.

Example III

Rubber solids from latex	100
Age-retarder	0.4
Casein	25
Water	As required

The casein is dissolved in a saturated aqueous solution of borax, which may contain about 4% of triethanolamine or triethanolamine stearate if desired, and is then mixed into the latex with stirring. The sealing films obtained from this composition form a very strong permanent seal when they are brought together after being moistened. They are repeat-sealing when brought together in a dry condition.

Example IV

Rubber solids	100
Age-retarder	1.4
Gelatin	8
Casein	1.6
Aerosol	0.2
Water	As required

The various materials are disposed in water and worked into the aqueous dispersion of rubber solids in the manner described in detail hereinabove.

Example V

Rubber solids from latex	100
Age-retarder	0.1
Gelatin	10
Karaya	0.4
Water	As required

The kayara is introduced in the form of a fluid prepared by dissolving 1.8 parts of soda ash in 100 parts of water and slowly working 3 parts of gum karaya into the liquid.

Example VI

Rubber solids from latex	100
Dextrin	70
Sugar	1
Water	As required

Coatings formed from the formula of Example VI repeat-seal effectively to coatings formed according to Example I. On being moistened, they seal permanently. The coating of Example VI, after being moistened, will adhere to paper and other materials. Thus it is feasible to coat the envelope flap and tab with the composition of Example VI, and to coat the sealing area on the back of the envelope with the composition of Example I. When it is desired to seal the envelope so that it cannot be reopened without tearing it, the coated region on the flap and the tab may both be moistened, whereupon, on closing the envelope, the sealing areas will unite and the tab will also seal to the back of the envelope, so that the means to facilitate disengagement of the coacting coatings is destroyed.

In the foregoing description of the present invention it will be apparent that many variations in detail may be made by those skilled in the art. Thus, for example, vulcanized latex or aqueous dispersions of crude rubber or of reclaim, or mixtures thereof may be substituted for part of the latex specified in the formulas hereinabove set forth. In general, however, the vulcanized latex tends to diminish somewhat the readiness with which the coatings adhere, whereas the synthetic dispersions, especially those of crude rubber, increase the tendency toward easy adhesion, but also lessen the strength of the coating. For the foregoing reasons, the rubber solids from latex are preferred.

Many other variations in detail may be made without departing from the spirit of the invention. I therefore intend to be restricted only in accordance with the following patent claims.

I claim:

1. An envelope comprising a body portion having a sealing area thereon, a flap portion having a tab and a sealing area complemental to the sealing area on said body portion, said sealing areas and said tab being coated with non-tacky dry-sealing adhesive, said body portion being uncoated in the region complemental to said tab, said adhesive reenforcing said tab and rendering said envelope repeat sealing.

2. A dry-sealing envelope comprising a body portion having a sealing area thereon, a flap portion having a handle and a sealing area complemental to the sealing area on said body portion, said sealing areas and said handle being coated with non-tacky composition containing rubber, said body portion being uncoated in the region complemental to said handle, said composition strengthening said tab and rendering said envelope repeat sealing.

3. A repeat sealing envelope for retaining relatively heavy objects, comprising a body portion, a flap portion, a handle on said flap portion, a non-tacky coating comprising rubber and water soluble adhesive on said handle to strengthen the same, and similar coatings tenaciously attached to said body portion and said flap portion and arranged to cooperate in keeping said envelope closed without adhering said handle to said body portion, said coatings possessing substantial resistance to separation from each other by the action of objects within said envelope, said envelope being opened by pulling outwardly on said handle.

4. A dry sealing envelope comprising a body portion having a sealing area thereon, a flap portion having a tab and a sealing area complemental to the sealing area on said body portion, said sealing areas and said tab being coated with a composition comprising rubber and a member selected from the group consisting of gelatin, glue, casein, and dextrin, said body portion being uncoated in the region complemental to said tab, said composition imparting increased mechanical strength to said tab and imparting to said sealing areas the capability repeatedly to adhere to each other after repeatedly being separated from each other.

5. An envelope or the like adapted to repeat-seal when dry-sealed and to seal with relative permanency when wet-sealed, comprising a body

portion, a flap portion, a tab on said flap portion, a coating on said tab and on said flap portion, and a coating on said body portion complemental to the coating on said flap portion but not to the coating upon said tab, said coatings comprising a mixture of rubber and moisture-activatable adhesive.

6. A repeat sealing envelope for retaining relatively heavy objects, comprising a body portion, a flap portion, a handle on said flap portion, a normally non-tacky composition of rubber and water soluble adhesive on said handle to strengthen the same and to permit said handle to be wet-sealed to said body portion, and similar compositions tenaciously cemented to said body portion and said flap portion and arranged to cooperate in keeping said envelope closed, said compositions possessing great resistance to separation from each other by the action of objects within said envelope, said envelope readily being opened by pulling outwardly on said handle.

7. An envelope or the like comprising a body portion, a flap portion, a tab on said flap portion, a coating on said tab and on said flap portion, and a coating on said body portion adapted to make contact with the coating on said flap portion but not with the coating upon said tab, said coatings containing sufficient rubber repeatedly to seal to each other upon dry contact and containing sufficient moisture-activatable adhesive to seal permanently to each other upon contact while moist.

8. An envelope or the like comprising a body portion, a flap portion, a tab on said flap portion, a coating on said tab and on said flap portion, and a coating on said body portion complemental to the coating on said flap portion but not to the coating upon said tab, said coatings comprising an intimate intermixture of a major proportion of rubber and a minor proportion of moisture-activatable adhesive, whereby said envelope is rendered repeat sealing when dry sealed and relatively permanent sealing when wet sealed.

9. An envelope or the like comprising a body portion, a flap portion, a tab on said flap portion, a normally non-tacky coating on said tab to reinforce the same, a normally non-tacky coating on said flap portion, and a normally non-tacky coating on said body portion arranged to contact the coating on said flap portion but not the coating upon said tab when said flap portion is folded upon said body portion, said coatings comprising a major proportion of rubber and a minor proportion of moisture-activatable adhesive in intimate intermixture, said envelope being adapted repeatedly to be dry-sealed by contact of said coatings with each other and repeatedly to be unsealed by pulling said tab, said coatings sealing together tenaciously after being moistened to resist the opening of said envelope by pulling upon said tab.

10. An envelope comprising a body portion having a sealing area thereon, a flap portion having a tab and a sealing area complemental to the sealing area on said body portion, said sealing areas and said tab being coated with a composition comprising rubber and a member selected from the group consisting of gelatin, glue, casein, and dextrin, said body portion being uncoated in the region complemental to said tab, said composition reenforcing said tab and rendering said envelope repeat sealing when dry sealed and relatively permanent sealing when wet sealed.

11. An envelope or the like adapted to be repeatedly sealed and unsealed when complemental sealing areas thereon are brought together in dry condition and adapted to seal to resist unsealing when said sealing areas are brought together in moistened condition, comprising a body portion, a flap portion, a tab on said flap portion, an intimate intermixture of rubber and moisture-activatable adhesive on said tab and on said flap portion, and a rubber coating arranged on said body portion to cooperate with the composition on said flap portion but not with the composition on said tab, said tab upon being moistened being capable of sealing to said body portion.

12. An envelope or the like provided with complemental sealing are as to be brought into contact with each other and a handle to facilitate disengaging said sealing areas from each other, said areas and said handle being coated with an intimate intermixture of rubber and moisture-activatable adhesive, whereby said envelope is rendered repeat sealing when dry sealed and relatively permanent sealing when wet sealed, said handle adhering to the uncoated region of said body portion only after making contact therewith in moist condition.

13. An envelope or the like provided with complemental sealing areas to be brought into contact with each other and a handle to facilitate disengaging said sealing areas from each other, said areas and said handle being coated with an intimate intermixture of rubber and moisture-activatable adhesive whereby said envelope is rendered repeat sealing when dry sealed and relatively permanent sealing when wet sealed, the coating upon said handle being sufficiently rich in moisture-activatable adhesive to enable said handle to wet seal to the uncoated portion of said envelope.

14. An envelope or the like comprising a body portion, a flap portion, a tab on said flap portion, rubber composition on said tab and on said flap portion, and rubber composition on said body portion arranged to make contact with the composition on said flap portion but not with the composition upon said tab, at least one of said compositions containing sufficient dextrin to render it wet-sealing.

15. An envelope or the like provided with complemental sealing areas to be opposed to each other in combination with a handle for pulling said areas apart, said areas and said handle being coated for sealing purposes with a composition comprising rubber solids, a water-soluble adhesive and a hygroscopic agent, said constituents endowing said sealing areas with the capability of being repeatedly sealed and separated when said areas are pressed together in a dry condition, and of being permanently sealed when said areas are pressed together in a moist condition, said handle when moistened being permanently sealed to the uncoated area of said envelope.

16. A repeat-sealing envelope comprising a sealing area on the body portion, a flap portion having a corresponding sealing area, and a lifting tab on said flap portion, said sealing areas and said tab being coated with a composition comprising gelatin and rubber, the area complemental to said tab being uncoated, said composition imparting to the sealing areas the capability of being repeatedly sealed and separated from each other, and imparting to said lifting tab increased mechanical strength.

17. A repeat-sealing envelope comprising a

sealing area on the body portion, a flap portion having a corresponding sealing area, and a lifting tab on said flap portion, said sealing areas and said tab being coated with a composition comprising rubber and a member selected from the group consisting of gelatin, glue, casein, and dextrin, the area complemental to said tab being uncoated, said compositions imparting to the sealing areas the capability of being repeatedly sealed and separated from each other when said areas are pressed together in a dry condition, and imparting to said lifting tab increased mechanical strength.

ALBERT I. KEGAN.

CERTIFICATE OF CORRECTION.

Patent No. 2,329,055. September 7, 1943.

ALBERT I. KEGAN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, first column, line 72, for "tub" read --tab--; page 4, first column, line 43, Example IV, for "disposed" read --dispersed--; line 54, Example V, for "kayara" read --karaya--; page 5, second column, line 16, claim 12, for "are as" read --areas--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of December, 1943.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)